Volunteer Lake Assessment Program Individual Lake Reports

WALKER POND, BOSCAWEN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	5,888	**Max. Depth (m):**	12.8	**Flushing Rate (yr^{-1}):**	3.2
Surface Area (Ac.):	174	**Mean Depth (m):**	4.5	**P Retention Coef:**	0.51
Shore Length (m):	4,000	**Volume (m^3):**	3,205,500	**Elevation (ft):**	500

TROPHIC CLASSIFICATION

Year	Trophic class
1996	EUTROPHIC
2013	TROPHIC

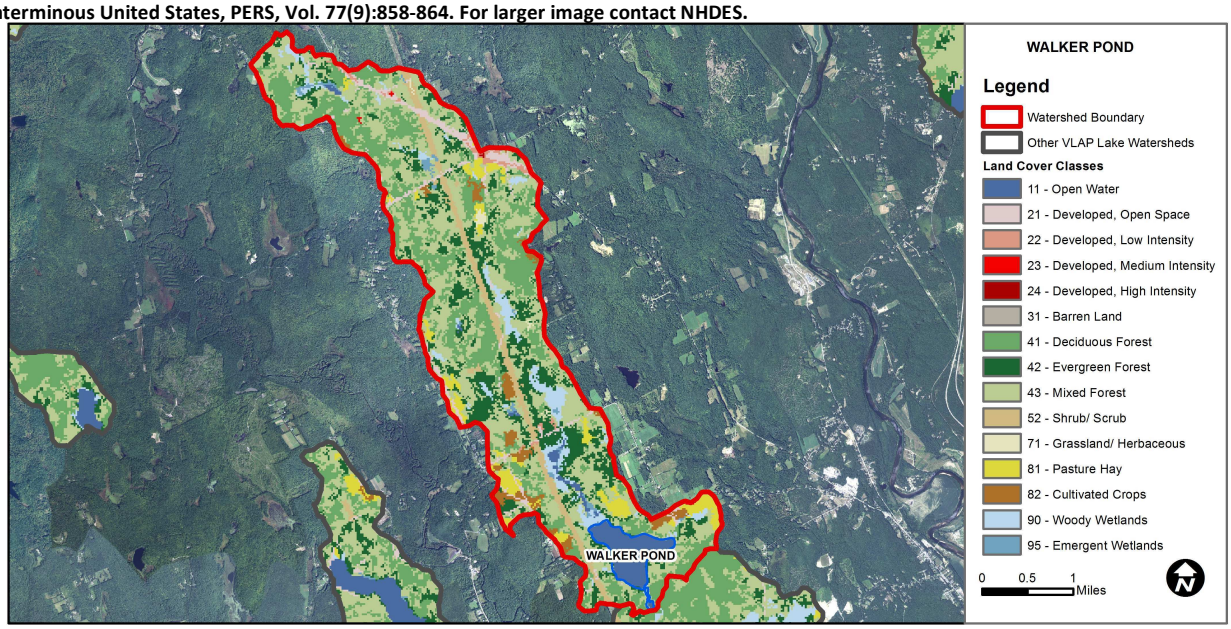
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Very Good	>5 samples and median is < 1/2 threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.

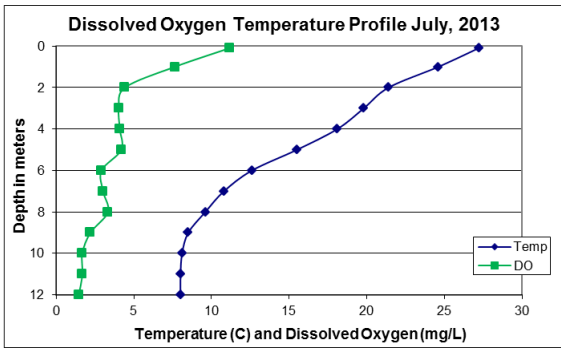


Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	3.97	Barren Land	0	Grassland/Herbaceous	0.29
Developed-Open Space	3.4	Deciduous Forest	22.58	Pasture Hay	4.64
Developed-Low Intensity	0.86	Evergreen Forest	15	Cultivated Crops	2.77
Developed-Medium Intensity	0.09	Mixed Forest	36.35	Woody Wetlands	4.64
Developed-High Intensity	0.02	Shrub-Scrub	4.38	Emergent Wetlands	0.8

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
WALKER POND, BOSCAWEN, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels were slightly greater than the state median in July but have remained stable since 2010.
- **CONDUCTIVITY/CHLORIDE:** Deep spot conductivity and chloride were slightly greater than the state medians but much less than state standards. Epilimnetic (upper water layer) conductivity has remained stabled since monitoring began.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low and less than the state median. Visual inspection of historical data indicates slightly variable epilimnetic phosphorus.
- **TRANSPARENCY:** Transparency decreased slightly from 2012 and was approximately equal to the state median. Visual inspection of historical data indicates slightly variable transparency.
- **TURBIDITY:** Deep spot turbidity was low, and epilimnetic turbidity was slightly greater than the metalimnion (middle water layer) and hypolimnion (lower water layer) likely due to algal growth and/or suspended sediments and pollutants from stormwater runoff following significant storm events.
- **PH:** Epilimnetic pH decreased greatly from 2012 and deep spot pH levels were less than desirable range 6.5 – 8.0 units. Wetland flushing from above average rainfall and significant storm events may have contributed to the decreased epilimnetic pH.
- **RECOMMENDED ACTIONS:** Increase monitoring frequency to three times per summer, typically June, July and August, to better assess seasonal water quality and historical trends. The pond's trophic status is being updated by DES' Lake Survey Program and was initially monitored in 2013 and will subsequently be monitored in 2014 and 2015 to provide a detailed trophic rating. Contact the Lake Survey Program to coordinate sampling dates in 2014 to avoid sampling on similar dates. Keep up the great work!



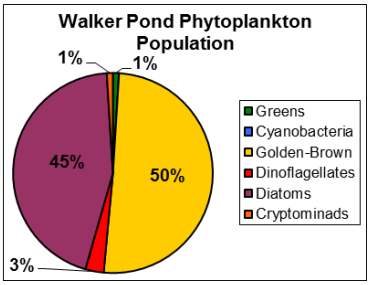


Table 1. 2013 Average Water Quality Data for WALKER POND

Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m / NVS	Turb. ntu	pH
Epilimnion	7.30	5.56	7	63.5	10	3.15	0.89	6.35
Metalimnion				72.7	7		0.52	6.15
Hypolimnion				73.2	10		0.67	6.04

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	N/A	Ten consecutive years of data necessary.	Chlorophyll-a	N/A	Ten consecutive years of data necessary.
Conductivity	N/A	Ten consecutive years of data necessary.	Transparency	N/A	Ten consecutive years of data necessary.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary.